

10/570010

1A9 Rec'd PCT/PTO 27 FEB 2006

13150-70089US.ST25
SEQUENCE LISTING

<110> Minerva Biotechnologies Corporation
BAMDAD, Cynthia, C.
<120> Techniques and Compositions for the Diagnosis and Treatment of
Cancer (MUC1)
<130> 13150-70089US
<140> PCT/US2004/027954
<141> 2004-08-26
<150> US 60/498,260
<151> 2003-08-26
<160> 66
<170> PatentIn version 3.3
<210> 1
<211> 39
<212> PRT
<213> Artificial Sequence
<220>
<223> Synthetic Peptide
<400> 1

Gly Thr Ile Asn Val His Asp Val Glu Thr Gln Phe Asn Gln Tyr Lys
1 5 10 15
Thr Glu Ala Ala Ser Pro Tyr Asn Leu Thr Ile Ser Asp Val Ser Val
20 25 30
Ser His His His His His
35

<210> 2
<211> 51
<212> PRT
<213> Artificial Sequence

<220>
<223> Synthetic Peptide
<400> 2

Gly Thr Ile Asn Val His Asp Val Glu Thr Gln Phe Asn Gln Tyr Lys
1 5 10 15
Thr Glu Ala Ala Ser Pro Tyr Asn Leu Thr Ile Ser Asp Val Ser Val
20 25 30
Ser Asp Val Pro Phe Pro Phe Ser Ala Gln Ser Gly Ala His His His
35 40 45

His His His

50

<210> 3
<211> 54
<212> PRT
<213> Artificial Sequence

<220>

<223> Synthetic Peptide

<400> 3

Val Gln Leu Thr Leu Ala Phe Arg Glu Gly Thr Ile Asn Val His Asp
1 5 10 15

Val Glu Thr Gln Phe Asn Gln Tyr Lys Thr Glu Ala Ala Ser Pro Tyr
20 25 30

Asn Leu Thr Ile Ser Asp Val Ser Val Ser Asp Val Pro Phe Pro Phe
35 40 45

His His His His His His
50

<210> 4
<211> 31
<212> PRT
<213> Artificial Sequence

<220>

<223> Synthetic Peptide

<400> 4

His His His His His His Gly Phe Leu Gly Leu Ser Asn Ile Lys Phe
1 5 10 15

Arg Pro Gly Ser Val Val Gln Leu Thr Leu Ala Phe Arg Glu
20 25 30

<210> 5
<211> 46
<212> PRT
<213> Artificial Sequence

<220>

<223> Synthetic Peptide

<400> 5

Pro Asp Thr Arg Pro Ala Pro Gly Ser Thr Ala Pro Pro Ala His Gly
1 5 10 15

Val Thr Ser Ala Pro Asp Thr Arg Pro Ala Pro Gly Ser Thr Ala Pro
20 25 30

13150-70089US.ST25
Pro Ala His Gly Val Thr Ser Ala His His His His His His
35 40 45

<210> 6
<211> 33
<212> PRT
<213> Artificial Sequence

<220>

<223> Synthetic Peptide

<400> 6

Gly Thr Ile Asn Val His Asp Val Glu Thr Gln Phe Asn Gln Tyr Lys
1 5 10 15

Thr Glu Ala Ala Ser Pro Tyr Asn Leu Thr Ile Ser Asp Val Ser Val
20 25 30

Ser

<210> 7
<211> 45
<212> PRT
<213> Artificial Sequence

<220>

<223> Synthetic Peptide

<400> 7

Gly Thr Ile Asn Val His Asp Val Glu Thr Gln Phe Asn Gln Tyr Lys
1 5 10 15

Thr Glu Ala Ala Ser Pro Tyr Asn Leu Thr Ile Ser Asp Val Ser Val
20 25 30

Ser Asp Val Pro Phe Pro Phe Ser Ala Gln Ser Gly Ala
35 40 45

<210> 8
<211> 25
<212> PRT
<213> Homo sapiens

<400> 8

Gly Phe Leu Gly Leu Ser Asn Ile Lys Phe Arg Pro Gly Ser Val Val
1 5 10 15

Val Gln Leu Thr Leu Ala Phe Arg Glu
20 25

<210> 9
<211> 40
<212> PRT
<213> Homo sapiens

13150-70089US.ST25

<400> 9

Pro Asp Thr Arg Pro Ala Pro Gly Ser Thr Ala Pro Pro Ala His Gly
1 5 10 15
Val Thr Ser Ala Pro Asp Thr Arg Pro Ala Pro Gly Ser Thr Ala Pro
20 25 30
Pro Ala His Gly Val Thr Ser Ala
35 40

<210> 10

<211> 1255
<212> PRT
<213> Homo sapiens

<400> 10

Met Thr Pro Gly Thr Gln Ser Pro Phe Phe Leu Leu Leu Leu Thr
1 5 10 15

Val Leu Thr Val Val Thr Gly Ser Gly His Ala Ser Ser Thr Pro Gly
20 25 30

Gly Glu Lys Glu Thr Ser Ala Thr Gln Arg Ser Ser Val Pro Ser Ser
35 40 45

Thr Glu Lys Asn Ala Val Ser Met Thr Ser Ser Val Leu Ser Ser His
50 55 60

Ser Pro Gly Ser Gly Ser Ser Thr Thr Gln Gly Gln Asp Val Thr Leu
65 70 75 80

Ala Pro Ala Thr Glu Pro Ala Ser Gly Ser Ala Ala Thr Trp Gly Gln
85 90 95

Asp Val Thr Ser Val Pro Val Thr Arg Pro Ala Leu Gly Ser Thr Thr
100 105 110

Pro Pro Ala His Asp Val Thr Ser Ala Pro Asp Asn Lys Pro Ala Pro
115 120 125

Gly Ser Thr Ala Pro Pro Ala His Gly Val Thr Ser Ala Pro Asp Thr
130 135 140

Arg Pro Ala Pro Gly Ser Thr Ala Pro Pro Ala His Gly Val Thr Ser
145 150 155 160

Ala Pro Asp Thr Arg Pro Ala Pro Gly Ser Thr Ala Pro Pro Ala His
165 170 175

Gly Val Thr Ser Ala Pro Asp Thr Arg Pro Ala Pro Gly Ser Thr Ala
180 185 190

Pro Pro Ala His Gly Val Thr Ser Ala Pro Asp Thr Arg Pro Ala Pro
195 200 205

Gly Ser Thr Ala Pro Pro Ala His Gly Val Thr Ser Ala Pro Asp Thr
210 215 220

Arg Pro Ala Pro Gly Ser Thr Ala Pro Pro Ala His Gly Val Thr Ser
Page 4

13150-70089US.ST25

225	230	235	240
Ala Pro Asp Thr Arg	Pro Ala Pro Gly Ser	Thr Ala Pro Pro Ala His	
245	250	255	
Gly Val Thr Ser Ala Pro Asp Thr Arg	Pro Ala Pro Gly Ser	Thr Ala	
260	265	270	
Pro Pro Ala His Gly val Thr Ser Ala Pro Asp Thr Arg	Pro Ala Pro		
275	280	285	
Gly Ser Thr Ala Pro Pro Ala His Gly Val Thr Ser Ala Pro Asp Thr			
290	295	300	
Arg Pro Ala Pro Gly Ser Thr Ala Pro Pro Ala His Gly Val Thr Ser			
305	310	315	320
Ala Pro Asp Thr Arg Pro Ala Pro Gly Ser Thr Ala Pro Pro Ala His			
325	330	335	
Gly Val Thr Ser Ala Pro Asp Thr Arg Pro Ala Pro Gly Ser Thr Ala			
340	345	350	
Pro Pro Ala His Gly Val Thr Ser Ala Pro Asp Thr Arg Pro Ala Pro			
355	360	365	
Gly Ser Thr Ala Pro Pro Ala His Gly Val Thr Ser Ala Pro Asp Thr			
370	375	380	
Arg Pro Ala Pro Gly Ser Thr Ala Pro Pro Ala His Gly Val Thr Ser			
385	390	395	400
Ala Pro Asp Thr Arg Pro Ala Pro Gly Ser Thr Ala Pro Pro Ala His			
405	410	415	
Gly Val Thr Ser Ala Pro Asp Thr Arg Pro Ala Pro Gly Ser Thr Ala			
420	425	430	
Pro Pro Ala His Gly Val Thr Ser Ala Pro Asp Thr Arg Pro Ala Pro			
435	440	445	
Gly Ser Thr Ala Pro Pro Ala His Gly Val Thr Ser Ala Pro Asp Thr			
450	455	460	
Arg Pro Ala Pro Gly Ser Thr Ala Pro Pro Ala His Gly Val Thr Ser			
465	470	475	480
Ala Pro Asp Thr Arg Pro Ala Pro Gly Ser Thr Ala Pro Pro Ala His			
485	490	495	
Gly Val Thr Ser Ala Pro Asp Thr Arg Pro Ala Pro Gly Ser Thr Ala			
500	505	510	
Pro Pro Ala His Gly Val Thr Ser Ala Pro Asp Thr Arg Pro Ala Pro			
515	520	525	
Gly Ser Thr Ala Pro Pro Ala His Gly Val Thr Ser Ala Pro Asp Thr			
530	535	540	
Arg Pro Ala Pro Gly Ser Thr Ala Pro Pro Ala His Gly Val Thr Ser			
545	550	555	560

13150-70089US.ST25

Ala Pro Asp Thr Arg Pro Ala Pro Gly Ser Thr Ala Pro Pro Ala His
565 570 575

Gly Val Thr Ser Ala Pro Asp Thr Arg Pro Ala Pro Gly Ser Thr Ala
580 585 590

Pro Pro Ala His Gly Val Thr Ser Ala Pro Asp Thr Arg Pro Ala Pro
595 600 605

Gly Ser Thr Ala Pro Pro Ala His Gly Val Thr Ser Ala Pro Asp Thr
610 615 620

Arg Pro Ala Pro Gly Ser Thr Ala Pro Pro Ala His Gly Val Thr Ser
625 630 635 640

Ala Pro Asp Thr Arg Pro Ala Pro Gly Ser Thr Ala Pro Pro Ala His
645 650 655

Gly Val Thr Ser Ala Pro Asp Thr Arg Pro Ala Pro Gly Ser Thr Ala
660 665 670

Pro Pro Ala His Gly Val Thr Ser Ala Pro Asp Thr Arg Pro Ala Pro
675 680 685

Gly Ser Thr Ala Pro Pro Ala His Gly Val Thr Ser Ala Pro Asp Thr
690 695 700

Arg Pro Ala Pro Gly Ser Thr Ala Pro Pro Ala His Gly Val Thr Ser
705 710 715 720

Ala Pro Asp Thr Arg Pro Ala Pro Gly Ser Thr Ala Pro Pro Ala His
725 730 735

Gly Val Thr Ser Ala Pro Asp Thr Arg Pro Ala Pro Gly Ser Thr Ala
740 745 750

Pro Pro Ala His Gly Val Thr Ser Ala Pro Asp Thr Arg Pro Ala Pro
755 760 765

Gly Ser Thr Ala Pro Pro Ala His Gly Val Thr Ser Ala Pro Asp Thr
770 775 780

Arg Pro Ala Pro Gly Ser Thr Ala Pro Pro Ala His Gly Val Thr Ser
785 790 795 800

Ala Pro Asp Thr Arg Pro Ala Pro Gly Ser Thr Ala Pro Pro Ala His
805 810 815

Gly Val Thr Ser Ala Pro Asp Thr Arg Pro Ala Pro Gly Ser Thr Ala
820 825 830

Pro Pro Ala His Gly Val Thr Ser Ala Pro Asp Thr Arg Pro Ala Pro
835 840 845

Gly Ser Thr Ala Pro Pro Ala His Gly Val Thr Ser Ala Pro Asp Thr
850 855 860

Arg Pro Ala Pro Gly Ser Thr Ala Pro Pro Ala His Gly Val Thr Ser
865 870 875 880

Ala Pro Asp Thr Arg Pro Ala Pro Gly Ser Thr Ala Pro Pro Ala His
885 890 895

13150-70089US.ST25

Gly Val Thr Ser Ala Pro Asp Thr Arg Pro Ala Pro Gly Ser Thr Ala
 900 905 910
 Pro Pro Ala His Gly Val Thr Ser Ala Pro Asp Thr Arg Pro Ala Pro
 915 920 925
 Gly Ser Thr Ala Pro Pro Ala His Gly Val Thr Ser Ala Pro Asp Asn
 930 935 940
 Arg Pro Ala Leu Gly Ser Thr Ala Pro Pro Val His Asn Val Thr Ser
 945 950 955 960
 Ala Ser Gly Ser Ala Ser Gly Ser Ala Ser Thr Leu Val His Asn Gly
 965 970 975
 Thr Ser Ala Arg Ala Thr Thr Pro Ala Ser Lys Ser Thr Pro Phe
 980 985 990
 Ser Ile Pro Ser His His Ser Asp Thr Pro Thr Thr Leu Ala Ser His
 995 1000 1005
 Ser Thr Lys Thr Asp Ala Ser Ser Thr His His Ser Ser Val Pro
 1010 1015 1020
 Pro Leu Thr Ser Ser Asn His Ser Thr Ser Pro Gln Leu Ser Thr
 1025 1030 1035
 Gly Val Ser Phe Phe Phe Leu Ser Phe His Ile Ser Asn Leu Gln
 1040 1045 1050
 Phe Asn Ser Ser Leu Glu Asp Pro Ser Thr Asp Tyr Tyr Gln Glu
 1055 1060 1065
 Leu Gln Arg Asp Ile Ser Glu Met Phe Leu Gln Ile Tyr Lys Gln
 1070 1075 1080
 Gly Gly Phe Leu Gly Leu Ser Asn Ile Lys Phe Arg Pro Gly Ser
 1085 1090 1095
 Val Val Val Gln Leu Thr Leu Ala Phe Arg Glu Gly Thr Ile Asn
 1100 1105 1110
 Val His Asp Val Glu Thr Gln Phe Asn Gln Tyr Lys Thr Glu Ala
 1115 1120 1125
 Ala Ser Arg Tyr Asn Leu Thr Ile Ser Asp Val Ser Val Ser Asp
 1130 1135 1140
 Val Pro Phe Pro Phe Ser Ala Gln Ser Gly Ala Gly Val Pro Gly
 1145 1150 1155
 Trp Gly Ile Ala Leu Leu Val Leu Val Cys Val Leu Val Ala Leu
 1160 1165 1170
 Ala Ile Val Tyr Leu Ile Ala Leu Ala Val Cys Gln Cys Arg Arg
 1175 1180 1185
 Lys Asn Tyr Gly Gln Leu Asp Ile Phe Pro Ala Arg Asp Thr Tyr
 1190 1195 1200
 His Pro Met Ser Glu Tyr Pro Thr Tyr His Thr His Gly Arg Tyr

1205 1210 13150-70089US ST25
1215

Val Pro Pro Ser Ser Thr Asp Arg Ser Pro Tyr Glu Lys Val Ser
1220 1225 1230

Ala Gly Asn Gly Gly Ser Ser Leu Ser Tyr Thr Asn Pro Ala Val
1235 1240 1245

Ala Ala Ala Ser Ala Asn Leu
1250 1255

<210> 11

<211> 302

<212> PRT

<213> Homo sapiens

<400> 11

Ala Ala Ala Lys Glu Gly Lys Lys Ser Arg Asp Arg Glu Arg Pro Pro
1 5 10 15

Ser Val Pro Ala Leu Arg Glu Gln Pro Pro Glu Thr Glu Pro Gln Pro
20 25 30

Ala Trp Lys Met Pro Arg Ser Cys Cys Ser Arg Ser Gly Ala Leu Leu
35 40 45

Leu Ala Leu Leu Leu Gln Ala Ser Met Glu Val Arg Gly Trp Cys Leu
50 55 60

Glu Ser Ser Gln Cys Gln Asp Leu Thr Thr Glu Ser Asn Leu Leu Glu
65 70 75 80

Cys Ile Arg Ala Cys Lys Pro Asp Leu Ser Ala Glu Thr Pro Met Phe
85 90 95

Pro Gly Asn Gly Asp Glu Gln Pro Leu Thr Glu Asn Pro Arg Lys Tyr
100 105 110

Val Met Gly His Phe Arg Trp Asp Arg Phe Gly Arg Arg Asn Ser Ser
115 120 125

Ser Ser Gly Ser Ser Gly Ala Gly Gln Lys Arg Glu Asp Val Ser Ala
130 135 140

Gly Glu Asp Cys Gly Pro Leu Pro Glu Gly Gly Pro Glu Pro Arg Ser
145 150 155 160

Asp Gly Ala Lys Pro Gly Pro Arg Glu Gly Lys Arg Ser Tyr Ser Met
165 170 175

Glu His Phe Arg Trp Gly Lys Pro Val Gly Lys Lys Arg Arg Pro Val
180 185 190

Lys Val Tyr Pro Asn Gly Ala Glu Asp Glu Ser Ala Glu Ala Phe Pro
195 200 205

Leu Glu Phe Lys Arg Glu Leu Thr Gly Gln Arg Leu Arg Glu Glu Gly Asp
210 215 220

Gly Pro Asp Gly Pro Ala Asp Asp Gly Ala Gly Ala Gln Ala Asp Leu
225 230 235 240

13150-70089US.ST25

Glu His Ser Leu Leu Val Ala Ala Glu Lys Lys Asp Glu Gly Pro Tyr
245 250 255

Arg Met Glu His Phe Arg Trp Gly Ser Pro Pro Lys Asp Lys Arg Tyr
260 265 270

Gly Gly Phe Met Thr Ser Glu Lys Ser Gln Thr Pro Leu Val Thr Leu
275 280 285

Phe Lys Asn Ala Ile Ile Lys Asn Ala Tyr Lys Lys Gly Glu
290 295 300

<210> 12
<211> 31
<212> PRT
<213> Artificial Sequence

<220>

<223> Synthetic Peptide

<400> 12

His His His His His Ser Ser Ser Ser Gly Ser Ser Ser Ser Gly
1 5 10 15

Ser Ser Ser Ser Gly Gly Arg Gly Asp Ser Gly Arg Gly Asp Ser
20 25 30

<210> 13
<211> 19
<212> PRT
<213> Artificial Sequence

<220>

<223> Synthetic Peptide

<400> 13

His His His His His Arg Gly Glu Phe Thr Gly Thr Tyr Ile Thr
1 5 10 15

Ala Val Thr

<210> 14
<211> 12
<212> PRT
<213> Homo sapiens

<400> 14

Thr Phe Ile Ala Ile Lys Pro Asp Gly Val Gln Arg
1 5 10

<210> 15
<211> 18

13150-70089US.ST25

<212> PRT
<213> Homo sapiens

<220>
<221> misc_feature
<222> (3)..(3)
<223> Xaa can be any naturally occurring amino acid

<400> 15

Val Met Xaa Leu Gly Glu Thr Asn Pro Ala Asp Ser Lys Pro Gly Thr
1 5 10 15

Ile Arg

<210> 16
<211> 17
<212> PRT
<213> Homo sapiens

<400> 16

Val Met Leu Gly Glu Thr Asn Pro Ala Asp Ser Lys Pro Gly Thr Ile
1 5 10 15

Arg

<210> 17
<211> 10
<212> PRT
<213> Homo sapiens

<400> 17

Asn Ile Ile His Gly Ser Asp Ser Val Lys
1 5 10

<210> 18
<211> 9
<212> PRT
<213> Homo sapiens

<400> 18

Gly Leu Val Gly Glu Ile Ile Lys Arg
1 5

<210> 19
<211> 8
<212> PRT
<213> Homo sapiens

<400> 19

Gly Leu Val Gly Glu Ile Ile Lys

1 5

<210> 20
<211> 21
<212> PRT
<213> Homo sapiens

<220>
<221> misc_feature
<222> (3)..(3)
<223> Xaa can be any naturally occurring amino acid

<220>
<221> misc_feature
<222> (12)..(12)
<223> Xaa can be any naturally occurring amino acid

<400> 20

Tyr Met Xaa His Ser Gly Pro Val Val Ala Met Xaa Val Trp Glu Gly
1 5 10 15
Leu Asn Val Val Lys
20

<210> 21
<211> 19
<212> PRT
<213> Homo sapiens

<400> 21

Ala Ala Phe Asp Asp Ala Ile Ala Glu Leu Asp Thr Leu Ser Glu Glu
1 5 10 15
Ser Tyr Lys

<210> 22
<211> 18
<212> PRT
<213> Homo sapiens

<220>
<221> misc_feature
<222> (8)..(8)
<223> Xaa can be any naturally occurring amino acid

<400> 22

Ala Ala Ser Asp Ile Ala Met Xaa Thr Glu Leu Pro Pro Thr His Pro
1 5 10 15
Ile Arg

<210> 23

13150-70089US.ST25

<211> 11
<212> PRT
<213> Homo sapiens

<400> 23

Tyr Leu Ala Glu Phe Ala Thr Gly Asn Asp Arg
1 5 10

<210> 24
<211> 10
<212> PRT
<213> Homo sapiens

<400> 24

Asp Ser Thr Leu Ile Met Gln Leu Leu Arg
1 5 10

<210> 25
<211> 9
<212> PRT
<213> Homo sapiens

<400> 25

Tyr Asp Glu Met Val Glu Ser Met Lys
1 5

<210> 26
<211> 14
<212> PRT
<213> Homo sapiens

<220>
<221> misc_feature
<222> (5)..(5)
<223> Xaa can be any naturally occurring amino acid

<400> 26

Val Ala Gly Met Xaa Asp Val Glu Leu Thr Val Glu Glu Arg
1 5 10

<210> 27
<211> 12
<212> PRT
<213> Homo sapiens

<400> 27

His Leu Ile Pro Ala Ala Asn Thr Gly Glu Ser Lys
1 5 10

<210> 28
<211> 19
<212> PRT

13150-70089US.ST25

<213> Homo sapiens

<220>

<221> misc_feature

<222> (12)..(12)

<223> Xaa can be any naturally occurring amino acid

<400> 28

Asp Pro Asp Ala Gln Pro Gly Gly Glu Leu Met Xaa Leu Gly Gly Thr
1 5 10 15

Asp Ser Lys

<210> 29

<211> 18

<212> PRT

<213> Homo sapiens

<400> 29

Asp Pro Asp Ala Gln Pro Gly Gly Glu Leu Met Leu Gly Gly Thr Asp
1 5 10 15

Ser Lys

<210> 30

<211> 18

<212> PRT

<213> Homo sapiens

<220>

<221> misc_feature

<222> (15)..(15)

<223> Xaa can be any naturally occurring amino acid

<400> 30

Ile Ser Val Asn Asn Val Leu Pro Val Phe Asp Asn Leu Met Xaa Gln
1 5 10 15

Gln Lys

<210> 31

<211> 17

<212> PRT

<213> Homo sapiens

<400> 31

Ile Ser Val Asn Asn Val Leu Pro Val Phe Asp Asn Leu Met Gln Gln
1 5 10 15

Lys

13150-70089US.ST25

<210> 32
<211> 10
<212> PRT
<213> Homo sapiens

<400> 32

Gln Pro Gly Ile Thr Phe Ile Ala Ala Lys
1 5 10

<210> 33
<211> 16
<212> PRT
<213> Homo sapiens

<400> 33

Gly Leu Gly Thr Asp Glu Glu Ser Ile Leu Thr Leu Leu Thr Ser Arg
1 5 10 15

<210> 34
<211> 13
<212> PRT
<213> Homo sapiens

<400> 34

Asp Leu Leu Asp Asp Leu Lys Ser Glu Leu Thr Gly Lys
1 5 10

<210> 35
<211> 9
<212> PRT
<213> Homo sapiens

<400> 35

Ser Glu Ile Asp Leu Phe Asn Ile Arg
1 5

<210> 36
<211> 45
<212> PRT
<213> Homo sapiens

<400> 36

Gly Thr Ile Asn Val His Asp Val Glu Thr Gln Phe Asn Gln Tyr Lys
1 5 10 15

Thr Glu Ala Ala Ser Arg Tyr Asn Leu Thr Ile Ser Asp Val Ser Val
20 25 30

Ser Asp Val Pro Phe Pro Phe Ser Ala Gln Ser Gly Ala
35 40 45

<210> 37
<211> 146

13150-70089US.ST25

<212> PRT
<213> Homo sapiens

<400> 37

Gly Thr Ile Asn Val His Asp Val Glu Thr Gln Phe Asn Gln Tyr Lys
1 5 10 15

Thr Glu Ala Ala Ser Arg Tyr Asn Leu Thr Ile Ser Asp Val Ser Val
20 25 30

Ser Asp Val Pro Phe Pro Phe Ser Ala Gln Ser Gly Ala Gly Val Pro
35 40 45

Gly Trp Gly Ile Ala Leu Leu Val Leu Val Cys Val Leu Val Ala Leu
50 55 60

Ala Ile Val Tyr Leu Ile Ala Leu Ala Val Cys Gln Cys Arg Arg Lys
65 70 75 80

Asn Tyr Gly Gln Leu Asp Ile Phe Pro Ala Arg Asp Thr Tyr His Pro
85 90 95

Met Ser Glu Tyr Pro Thr Tyr His Thr His Gly Arg Tyr Val Pro Pro
100 105 110

Ser Ser Thr Asp Arg Ser Pro Tyr Glu Lys Val Ser Ala Gly Asn Gly
115 120 125

Gly Ser Ser Leu Ser Tyr Thr Asn Pro Ala Val Ala Ala Ala Ser Ala
130 135 140

Asn Leu
145

<210> 38
<211> 171

<212> PRT
<213> Homo sapiens

<400> 38

Gly Phe Leu Gly Leu Ser Asn Ile Lys Phe Arg Pro Gly Ser Val Val
1 5 10 15

Val Gln Leu Thr Leu Ala Phe Arg Glu Gly Thr Ile Asn Val His Asp
20 25 30

Val Glu Thr Gln Phe Asn Gln Tyr Lys Thr Glu Ala Ala Ser Arg Tyr
35 40 45

Asn Leu Thr Ile Ser Asp Val Ser Val Asp Val Pro Phe Pro Phe
50 55 60

Ser Ala Gln Ser Gly Ala Gly Val Pro Gly Trp Gly Ile Ala Leu Leu
65 70 75 80

Val Leu Val Cys Val Leu Val Ala Leu Ala Ile Val Tyr Leu Ile Ala
85 90 95

Leu Ala Val Cys Gln Cys Arg Arg Lys Asn Tyr Gly Gln Leu Asp Ile
100 105 110

13150-70089US.ST25

Phe	Pro	Ala	Arg	Asp	Thr	Tyr	His	Pro	Met	Ser	Glu	Tyr	Pro	Thr	Tyr
115							120					125			
His	Thr	His	Gly	Arg	Tyr	Val	Pro	Pro	Ser	Ser	Thr	Asp	Arg	Ser	Pro
130						135					140				
Tyr	Glu	Lys	Val	Ser	Ala	Gly	Asn	Gly	Gly	Ser	Ser	Leu	Ser	Tyr	Thr
145					150					155					160
Asn	Pro	Ala	Val	Ala	Ala	Ala	Ser	Ala	Asn	Leu					
					165					170					

<210> 39
<211> 275
<212> PRT
<213> Homo sapiens

<400> 39

Ala Thr Thr Thr Pro Ala Ser Lys Ser Thr Pro Phe Ser Ile Pro Ser
1 5 10 15

His His Ser Asp Thr Pro Thr Thr Leu Ala Ser His Ser Thr Lys Thr
20 25 30

Asp Ala Ser Ser Thr His His Ser Thr Val Pro Pro Leu Thr Ser Ser
35 40 45

Asn His Ser Thr Ser Pro Gln Leu Ser Thr Gly Val Ser Phe Phe Phe
50 55 60

Leu Ser Phe His Ile Ser Asn Leu Gln Phe Asn Ser Ser Leu Glu Asp
65 70 75 80

Pro Ser Thr Asp Tyr Tyr Gln Glu Leu Gln Arg Asp Ile Ser Glu Met
85 90 95

Phe Leu Gln Ile Tyr Lys Gln Gly Phe Leu Gly Leu Ser Asn Ile
100 105 110

Lys Phe Arg Pro Gly Ser Val Val Gln Leu Thr Leu Ala Phe Arg
115 120 125

Glu Gly Thr Ile Asn Val His Asp Val Glu Thr Gln Phe Asn Gln Tyr
130 135 140

Lys Thr Glu Ala Ala Ser Arg Tyr Asn Leu Thr Ile Ser Asp Val Ser
145 150 155 160

Val Ser Asp Val Pro Phe Pro Phe Ser Ala Gln Ser Gly Ala Gly Val
165 170 175

Pro Gly Trp Gly Ile Ala Leu Leu Val Leu Val Cys Val Leu Val Ala
180 185 190

Leu Ala Ile Val Tyr Leu Ile Ala Leu Ala Val Cys Gln Cys Arg Arg
195 200 205

Lys Asn Tyr Gly Gln Leu Asp Ile Phe Pro Ala Arg Asp Thr Tyr His
210 215 220

13150-70089US.ST25

Pro Met Ser Glu Tyr Pro Thr Tyr His Thr His Gly Arg Tyr Val Pro
225 230 235 240

Pro Ser Ser Thr Asp Arg Ser Pro Tyr Glu Lys Val Ser Ala Gly Asn
245 250 255

Gly Gly Ser Ser Leu Ser Tyr Thr Asn Pro Ala Val Ala Ala Ser
260 265 270

Ala Asn Leu
275

<210> 40
<211> 233
<212> PRT
<213> Homo sapiens

<400> 40

Gly Ser Gly His Ala Ser Ser Thr Pro Gly Gly Glu Lys Glu Thr Ser
1 5 10 15

Ala Thr Gln Arg Ser Ser Val Pro Ser Ser Thr Glu Lys Asn Ala Phe
20 25 30

Asn Ser Ser Leu Glu Asp Pro Ser Thr Asp Tyr Tyr Gln Glu Leu Gln
35 40 45

Arg Asp Ile Ser Glu Met Phe Leu Gln Ile Tyr Lys Gln Gly Gly Phe
50 55 60

Leu Gly Leu Ser Asn Ile Lys Phe Arg Pro Gly Ser Val Val Val Gln
65 70 75 80

Leu Thr Leu Ala Phe Arg Glu Gly Thr Ile Asn Val His Asp Met Glu
85 90 95

Thr Gln Phe Asn Gln Tyr Lys Thr Glu Ala Ala Ser Arg Tyr Asn Leu
100 105 110

Thr Ile Ser Asp Val Ser Val Ser Asp Val Pro Phe Pro Phe Ser Ala
115 120 125

Gln Ser Gly Ala Gly Val Pro Gly Trp Gly Ile Ala Leu Leu Val Leu
130 135 140

Val Cys Val Leu Val Ala Leu Ala Ile Val Tyr Leu Ile Ala Leu Ala
145 150 155 160

Val Cys Gln Cys Arg Arg Lys Asn Tyr Gly Gln Leu Asp Ile Phe Pro
165 170 175

Ala Arg Asp Thr Tyr His Pro Met Ser Glu Tyr Pro Thr Tyr His Thr
180 185 190

His Gly Arg Tyr Val Pro Pro Ser Ser Thr Asp Arg Ser Pro Tyr Glu
195 200 205

Lys Val Ser Ala Gly Asn Gly Gly Ser Ser Leu Ser Tyr Thr Asn Pro
210 215 220

13150-70089US.ST25

Ala Val Ala Ala Thr Ser Ala Asn Leu
225 230

<210> 41
<211> 863
<212> PRT
<213> Homo sapiens

<400> 41

Leu Asp Pro Arg Val Arg Thr Ser Ala Pro Asp Thr Arg Pro Ala Pro
1 5 10 15

Gly Ser Thr Ala Pro Gln Ala His Gly Val Thr Ser Ala Pro Asp Thr
20 25 30

Arg Pro Ala Pro Gly Ser Thr Ala Pro Pro Ala His Gly Val Thr Ser
35 40 45

Ala Pro Asp Thr Arg Pro Ala Pro Gly Ser Thr Ala Pro Pro Ala His
50 55 60

Gly Val Thr Ser Ala Pro Asp Thr Arg Pro Ala Pro Gly Ser Thr Ala
65 70 75 80

Pro Pro Ala His Gly Val Thr Ser Ala Pro Asp Thr Arg Pro Ala Pro
85 90 95

Gly Ser Thr Ala Pro Pro Ala His Gly Val Thr Ser Ala Pro Asp Thr
100 105 110

Arg Pro Ala Pro Gly Ser Thr Ala Pro Pro Ala His Gly Val Thr Ser
115 120 125

Ala Pro Asp Thr Arg Pro Ala Pro Gly Ser Thr Ala Pro Pro Ala His
130 135 140

Gly Val Thr Ser Ala Pro Asp Thr Arg Pro Ala Pro Gly Ser Thr Ala
145 150 155 160

Pro Pro Ala His Gly Val Thr Ser Ala Pro Asp Thr Arg Pro Ala Pro
165 170 175

Gly Ser Thr Ala Pro Pro Ala His Gly Val Thr Ser Ala Pro Asp Thr
180 185 190

Arg Pro Ala Pro Gly Ser Thr Ala Pro Pro Ala His Gly Val Thr Ser
195 200 205

Ala Pro Asp Thr Arg Pro Ala Pro Gly Ser Thr Ala Pro Pro Ala His
210 215 220

Gly Val Thr Ser Ala Pro Asp Thr Arg Pro Ala Pro Gly Ser Thr Ala
225 230 235 240

Pro Pro Ala His Gly Val Thr Ser Ala Pro Asp Thr Arg Pro Ala Pro
245 250 255

Gly Ser Thr Ala Pro Pro Ala His Gly Val Thr Ser Ala Pro Asp Thr
260 265 270

Arg Pro Ala Pro Gly Ser Thr Ala Pro Pro Ala His Gly Val Thr Ser
Page 18

13150-70089US.ST25

275

280

285

Ala Pro Asp Thr Arg Pro Ala Pro Gly Ser Thr Ala Pro Pro Ala His
290 295 300

Gly Val Thr Ser Ala Pro Asp Thr Arg Pro Ala Pro Gly Ser Thr Ala
305 310 315 320

Pro Pro Ala His Gly Val Thr Ser Ala Pro Asp Thr Arg Pro Ala Pro
325 330 335

Gly Ser Thr Ala Pro Pro Ala His Gly Val Thr Ser Ala Pro Asp Thr
340 345 350

Arg Pro Ala Pro Gly Ser Thr Ala Pro Pro Ala His Gly Val Thr Ser
355 360 365

Ala Pro Asp Thr Arg Pro Ala Pro Gly Ser Thr Ala Pro Pro Ala His
370 375 380

Gly Val Thr Ser Ala Pro Asp Thr Arg Pro Ala Pro Gly Ser Thr Ala
385 390 395 400

Pro Pro Ala His Gly Val Thr Ser Ala Pro Asp Thr Arg Pro Ala Pro
405 410 415

Gly Ser Thr Ala Pro Pro Ala His Gly Val Thr Ser Ala Pro Asp Thr
420 425 430

Arg Pro Ala Pro Gly Ser Thr Ala Pro Pro Ala His Gly Val Thr Ser
435 440 445

Ala Pro Asp Thr Arg Pro Ala Pro Gly Ser Thr Ala Pro Pro Ala His
450 455 460

Gly Val Thr Ser Ala Pro Asp Thr Arg Pro Ala Pro Gly Ser Thr Ala
465 470 475 480

Pro Pro Ala His Gly Val Thr Ser Ala Pro Asp Thr Arg Pro Ala Pro
485 490 495

Gly Ser Thr Ala Pro Pro Ala His Gly Val Thr Ser Ala Pro Asp Thr
500 505 510

Arg Pro Ala Pro Gly Ser Thr Ala Pro Pro Ala His Gly Val Thr Ser
515 520 525

Ala Pro Asp Thr Arg Pro Ala Pro Gly Ser Thr Ala Pro Pro Ala His
530 535 540

Gly Val Thr Ser Ala Pro Asp Asn Arg Pro Ala Leu Gly Ser Thr Ala
545 550 555 560

Pro Pro Val His Asn Val Thr Ser Ala Ser Gly Ser Ala Ser Gly Ser
565 570 575

Ala Ser Thr Leu Val His Asn Gly Thr Ser Ala Arg Ala Thr Thr Thr
580 585 590

Pro Ala Ser Lys Ser Thr Pro Phe Ser Ile Pro Ser His His Ser Asp
595 600 605

13150-70089US.ST25

Thr	Pro	Thr	Thr	Leu	Ala	Ser	His	Ser	Thr	Lys	Thr	Asp	Ala	Ser	Ser
610				615					620						
Thr	His	His	Ser	Ser	Val	Pro	Pro	Leu	Thr	Ser	Ser	Asn	His	Ser	Thr
625				630					635						640
Ser	Pro	Gln	Leu	Ser	Thr	Gly	Val	Ser	Phe	Phe	Phe	Leu	Ser	Phe	His
				645				650					655		
Ile	Ser	Asn	Leu	Gln	Phe	Asn	Ser	Ser	Leu	Glu	Asp	Pro	Ser	Thr	Asp
				660				665			670				
Tyr	Tyr	Gln	Glu	Leu	Gln	Arg	Asp	Ile	Ser	Glu	Met	Phe	Leu	Gln	Ile
				675			680			685					
Tyr	Lys	Gln	Gly	Gly	Phe	Leu	Gly	Leu	Ser	Asn	Ile	Lys	Phe	Arg	Pro
	690				695				700						
Gly	Ser	Val	Val	Val	Gln	Leu	Thr	Leu	Ala	Phe	Arg	Glu	Gly	Thr	Ile
	705				710				715				720		
Asn	Val	His	Asp	Val	Glu	Thr	Gln	Phe	Asn	Gln	Tyr	Lys	Thr	Glu	Ala
				725				730			735				
Ala	Ser	Arg	Tyr	Asn	Leu	Thr	Ile	Ser	Asp	Val	Ser	Asp	Val		
				740				745			750				
Pro	Phe	Pro	Phe	Ser	Ala	Gln	Ser	Gly	Ala	Gly	Val	Pro	Gly	Trp	Gly
				755			760			765					
Ile	Ala	Leu	Leu	Val	Leu	Val	Cys	Val	Leu	Val	Ala	Leu	Ala	Ile	Val
				770			775			780					
Tyr	Leu	Ile	Ala	Leu	Ala	Val	Cys	Gln	Cys	Arg	Arg	Lys	Asn	Tyr	Gly
					790				795					800	
Gln	Leu	Asp	Ile	Phe	Pro	Ala	Arg	Asp	Thr	Tyr	His	Pro	Met	Ser	Glu
				805				810				815			
Tyr	Pro	Thr	Tyr	His	Thr	His	Gly	Arg	Tyr	Val	Pro	Pro	Ser	Ser	Thr
				820			825			830					
Asp	Arg	Ser	Pro	Tyr	Glu	Lys	Val	Ser	Ala	Gly	Asn	Gly	Gly	Ser	Ser
				835			840			845					
Leu	Ser	Tyr	Thr	Asn	Pro	Ala	Val	Ala	Ala	Ala	Ser	Ala	Asn	Leu	
				850			855			860					

<210> 42
<211> 751
<212> DNA
<213> Homo sapiens

<400> 42
acgggcacgg ccgttaccat caatgtccac gacgtggaga cacagttcaa tcagtataaa 60
acggaagcag cctctcgata taacctgacg atctcagacg tcagcgtgag tgatgtgcc 120
tttccttct ctgcccagtc tggggctggg gtgccaggct ggggcattcgc gctgctggg 180
ctggtctgtg ttctgggtgc gctggccatt gtctatctca ttgccttggc tgtctgtcag 240

13150-70089US.ST25

tgccggcaa agaactacgg gcagctggac atcttccag cccggatac ctaccatcct	300
atgagcgagt accccaccta ccacacccat gggcgctatg tgccccctag cagtaccgat	360
cgtagccct atgagaaggt ttctgcaggt aacggtggca gcagcctctc ttacacaaac	420
ccagcagtgg cagccgcttc tgccaacttg tagggcacgt cgccgctgag ctgagtggcc	480
agccagtgcc attccactcc actcaggttc ttcaggccag agcccctgca .ccctgtttgg	540
gctggtgagc tggagttca ggtggctgc tcacagcctc cttcagaggc cccaccaatt	600
tctcggacac ttctcagtgt gtggaaagctc atgtgggccc ctgaggctca tgccctggaa	660
gtgttgtgg ggctcccagg aggactggcc cagagagccc tgagatagcg gggatcctga	720
actggactga ataaaacgtg gtctcccact g	751

<210> 43
<211> 820
<212> DNA
<213> Homo sapiens

<400> 43 acggccggtt ttctggcct ctccaatatt aagttcagggc caggatctgt ggtggtacaa	60
ttgactctgg cttccgaga aggtaccatc aatgtccacg acgtggagac acagttcaat	120
cagtataaaa cggaaagcagc ctctcgatat aacctgacga tctcagacgt cagcgtgagt	180
gatgtgccat tcccttctc tgcccagtct gggctgggg tgccaggctg gggcatcgcg	240
ctgctggtgc tggctgtgt tctggttgcg ctggccattt tctatctcat tgccctggct	300
gtctgtcagt gccgcccggaaa gaactacggg cagctggaca tcttccagc ccggataacc	360
taccatccta tgagcgagta ccccacctac cacacccatg ggcgtatgt gcccccttagc	420
agtaccgatc gtagcccccta tgagaaggtt tctgcaggtt acgggtggcag cagcctctct	480
tacacaaacc cagcagtggc agccgcttct gccaacttgtt agggcacgtc gccgctgagc	540
tgagtggcca gccagtgcca ttccactcca ctcaggttct tcaggccaga gccccctgcac	600
cctgtttggg ctggtgagct gggagtttagt gtgggtgtct cacagcctcc ttcaaggcc	660
ccaccaattt ctcggacact tctcagtgtg tggaagctca tgtgggcccc tgaggctcat	720
gcctggaaag ttttgtggg gctcccaggaa ggactggccc agagagccct gagatagcg	780
ggatcctgaa ctggactgaa taaaacgtgg tctcccactg	820

<210> 44
<211> 1132
<212> DNA
<213> Homo sapiens

<400> 44 acggccgcta ccacaacccc agccagcaag agcactccat tctcaattcc cagccaccac	60
---	----

13150-70089US.ST25

tctgatactc	ctaccaccc	tgccagccat	agcaccaaga	ctgatgccag	tagca	cac	120	
catagctcg	g	taccc	cct	c	aat	ca	180	
gggtctctt	t	tttt	cct	ttt	ca	aa	240	
gaagatccc	a	gcaccgacta	ctaccaagag	ctgcagagag	acatttctga	aatgtttt	300	
cagatttata	a	aacaaggggg	tttctggc	ctctccaata	ttaagttcag	gccaggatct	360	
gtggtgttac	a	aattgactct	ggc	ttcc	ga	agg	ta	420
acacagttca	atc	agtataa	aacg	gaag	ca	gc	tc	480
gtc	ac	g	gt	at	gt	cc	at	540
tggggcatcg	cg	ctg	ctgg	gt	gg	ct	gg	600
attgccttgg	ct	gt	ct	gt	ca	gt	cc	660
gcccggata	c	c	t	ac	cc	ac	cc	720
gtgcccccta	gc	ag	tac	cc	ta	cgt	gg	780
agcagcctct	ct	ta	ca	ca	cc	at	tc	840
tcgccc	ct	ga	gt	gg	ca	tc	gg	900
gagcc	cc	ct	gt	tt	gg	at	tc	960
cctc	ca	gg	at	tt	gg	aa	gg	1020
cctgagg	tc	at	gc	ct	gg	tt	gg	1080
ctgagat	ag	gg	at	c	ct	gg	ac	tg
								1132

<210> 45
<211> 717
<212> DNA
<213> Homo sapiens

<400> 45	acaggttctg	gtcatgcaag	ctctacccca	gg	tggagaaa	agg	agacttc	gg	ctacccag	60					
agaagttcag	tgccc	agc	t	tc	tactgagaag	aat	gctttt	ta	ttc	ttct	ct	ct	g	120	
agcaccgact	act	accaaga	g	tc	tc	g	ac	ttt	ct	tt	tt	tt	tt	tt	180
aaacaagggg	gt	ttt	ct	ggg	c	ct	tc	ca	at	ta	at	tt	ca	tt	240
caattgactc	tgg	c	tt	cc	ag	aa	gg	tac	ca	tat	gt	tc	ac	gt	300
aatcagtata	aa	ac	g	gg	ac	ct	tc	ta	ta	ac	tc	ca	ga	cg	360
agtgatgtgc	catt	tc	tt	tt	ct	tc	cc	ag	t	tt	tt	tt	tt	tt	420
g	cg	ct	gt	gg	tg	ct	gg	gt	tc	tt	tt	tt	tt	tt	480
g	ct	gt	tc	gt	tc	tt	gg	gg	cc	gg	gg	gg	gg	gg	540
ac	ct	ac	cc	at	cc	ac	cc	ac	cc	ac	cc	ac	cc	ac	600

13150-70089US.ST25

agcagtaccg atcgtagccc ctatgagaag gtttctgcag gtaatggtgg cagcagcctc	660
tcttacacaa acccagcagt ggcagccact tctgccaact tgtagggca cgtcgcc	717
<210> 46	
<211> 2487	
<212> DNA	
<213> Homo sapiens	
<400> 46	
ctcgacccac gcgtccgctc gacccacgac tccgcaccc tcggccggac accaggccgg	60
ccccgggctc caccgcccccc ccagcccacg gtgtcaccc tcggccggac accaggccgg	120
ccccgggctc caccgcccccc ccagcccacg gtgtcaccc tcggccggac accaggccgg	180
ccccgggctc caccgcccccc ccagcccacg gtgtcaccc tcggccggac accaggccgg	240
ccccgggctc caccgcccccc ccagcccacg gtgtcaccc tcggccggac accaggccgg	300
ccccgggctc caccgcccccc ccagcccacg gtgtcaccc tcggccggac accaggccgg	360
ccccgggctc caccgcccccc ccagcccacg gtgtcaccc tcggccggac accaggccgg	420
ccccgggctc caccgcccccc ccagcccacg gtgtcaccc tcggccggac accaggccgg	480
ccccgggctc caccgcccccc ccagcccacg gtgtcaccc tcggccggac accaggccgg	540
ccccgggctc caccgcccccc ccagcccacg gtgtcaccc tcggccggac accaggccgg	600
ccccgggctc caccgcccccc ccagcccacg gtgtcaccc tcggccggac accaggccgg	660
ccccgggctc caccgcccccc ccagcccacg gtgtcaccc tcggccggac accaggccgg	720
ccccgggctc caccgcccccc ccagcccacg gtgtcaccc tcggccggac accaggccgg	780
ccccgggctc caccgcccccc ccagcccacg gtgtcaccc tcggccggac accaggccgg	840
ccccgggctc caccgcccccc ccagcccacg gtgtcaccc tcggccggac accaggccgg	900
ccccgggctc caccgcccccc ccagcccacg gtgtcaccc tcggccggac accaggccgg	960
ccccgggctc caccgcccccc ccagcccacg gtgtcaccc tcggccggac accaggccgg	1020
ccccgggctc caccgcccccc ccagcccacg gtgtcaccc tcggccggac accaggccgg	1080
ccccgggctc caccgcccccc ccagcccacg gtgtcaccc tcggccggac accaggccgg	1140
ccccgggctc caccgcccccc ccagcccacg gtgtcaccc tcggccggac accaggccgg	1200
ccccgggctc caccgcccccc ccagcccacg gtgtcaccc tcggccggac accaggccgg	1260
ccttgggctc caccgccccct ccagtccaca atgtcaccc tcggccggac tctgcaccc	1320
gctcagcttc tactctggtg cacaacggca cctctgccag ggctaccaca accccagcca	1380
gcaagagcac tccattctca attcccagcc accactctga tactcctacc acccttgcca	1440
gccatagcac caagactgat gccagtagca ctcaccatac ctcggtaccc ccttcaccc	1500
cctccaatca cagcacttct cccagttgt ctactgggt ctctttttt ttccctgtctt	1560

13150-70089US.ST25

ttcacattc aaacctccag tttaattcct ctctgaaaga tcccagcacc gactactacc	1620
aagagctgca gagagacatt tctgaaatgt tttgcagat ttataaaca gggggtttc	1680
tgggcctctc caatattaag ttcaggccag gatctgttgt ggtacaattt actctggcct	1740
tccgagaagg taccatcaat gtccacgacg tggagacaca gttcaatcag tataaaacgg	1800
aagcagcctc tcgatataac ctgacgatct cagacgtcag cgtgagtgtat gtgccatttc	1860
ctttctctgc ccagtctggg gctgggggc caggctgggg catcgctg ctggctgg	1920
tctgtttctt gtttgcgtgc gccattgtct atctcatttc cttggctgtc tgtcagtgtcc	1980
gccgaaagaa ctacgggcag ctggacatct ttccagcccc ggatacctac catcctatga	2040
gcgagtaccc cacctaccac acccatgggc gctatgtgcc cccttagcgt accgatcgta	2100
gcccctatga gaaggtttct gcaggtaacg gtggcagcag cctcttttac acaaaccag	2160
cagtggcagc cgcttctgcc aactttagg gcacgtcgcc gctgagctga gtggccagcc	2220
agtgcatttc cactccactc aggttcttca ggccagagcc cctgcaccct gtttggctg	2280
gtgagctggg agttcaggtg ggctgctcac agcctccttc agaggccccca ccaatttctc	2340
ggacacttct cagtgtgtgg aagctcatgt gggccctga ggctcatgcc tggaaagtgt	2400
tgtggggct cccaggagga ctggccaga gagccctgag atagcgggaa tcctgaactg	2460
gactgaataa aacgtggtct cccactg	2487

<210> 47
<211> 19
<212> PRT
<213> Homo sapiens

<400> 47

Met Thr Pro Gly Thr Gln Ser Pro Phe Phe Leu Leu Leu Leu Thr
1 5 10 15

Val Leu Thr

<210> 48
<211> 4003
<212> DNA
<213> Homo sapiens

<400> 48
acaggttctg gtcatgcaag ctctacccca ggtggagaaa aggagacttc ggctacccag 60
agaagttcag tgcccagctc tactgagaag aatgctgtga gtatgaccag cagcgtactc 120
tccagccaca gccccgggttc aggctcctcc accactcagg gacaggatgt cactctggcc 180
ccggccacgg aaccagcttc aggttcagct gccacctggg gacaggatgt cacctcggtc 240
ccagtcacca ggccagccct gggctccacc accccgccag cccacgtgt cacctcagcc 300

13150-70089US.ST25

ccggacaaca	agccagcccc	gggctccacc	gcccccccag	cccacggtgt	cacctcgcc	360
ccggacacca	ggccggcccc	gggctccacc	gcccccccag	cccacggtgt	cacctcgcc	420
ccggacacca	ggccggcccc	gggctccacc	gcccccccag	cccacggtgt	cacctcgcc	480
ccggacacca	ggccggcccc	gggctccacc	gcccccccag	cccacggtgt	cacctcgcc	540
ccggacacca	ggccggcccc	gggctccacc	gcccccccag	cccacggtgt	cacctcgcc	600
ccggacacca	ggccggcccc	gggctccacc	gcccccccag	cccacggtgt	cacctcgcc	660
ccggacacca	ggccggcccc	gggctccacc	gcccccccag	cccacggtgt	cacctcgcc	720
ccggacacca	ggccggcccc	gggctccacc	gcccccccag	cccacggtgt	cacctcgcc	780
ccggacacca	ggccggcccc	gggctccacc	gcccccccag	cccacggtgt	cacctcgcc	840
ccggacacca	ggccggcccc	gggctccacc	gcccccccag	cccacggtgt	cacctcgcc	900
ccggacacca	ggccggcccc	gggctccacc	gcccccccag	cccacggtgt	cacctcgcc	960
ccggacacca	ggccggcccc	gggctccacc	gcccccccag	cccacggtgt	cacctcgcc	1020
ccggacacca	ggccggcccc	gggctccacc	gcccccccag	cccacggtgt	cacctcgcc	1080
ccggacacca	ggccggcccc	gggctccacc	gcccccccag	cccacggtgt	cacctcgcc	1140
ccggacacca	ggccggcccc	gggctccacc	gcccccccag	cccacggtgt	cacctcgcc	1200
ccggacacca	ggccggcccc	gggctccacc	gcccccccag	cccacggtgt	cacctcgcc	1260
ccggacacca	ggccggcccc	gggctccacc	gcccccccag	cccacggtgt	cacctcgcc	1320
ccggacacca	ggccggcccc	gggctccacc	gcccccccag	cccacggtgt	cacctcgcc	1380
ccggacacca	ggccggcccc	gggctccacc	gcccccccag	cccacggtgt	cacctcgcc	1440
ccggacacca	ggccggcccc	gggctccacc	gcccccccag	cccacggtgt	cacctcgcc	1500
ccggacacca	ggccggcccc	gggctccacc	gcccccccag	cccacggtgt	cacctcgcc	1560
ccggacacca	ggccggcccc	gggctccacc	gcccccccag	cccacggtgt	cacctcgcc	1620
ccggacacca	ggccggcccc	gggctccacc	gcccccccag	cccacggtgt	cacctcgcc	1680
ccggacacca	ggccggcccc	gggctccacc	gcccccccag	cccacggtgt	cacctcgcc	1740
ccggacacca	ggccggcccc	gggctccacc	gcccccccag	cccacggtgt	cacctcgcc	1800
ccggacacca	ggccggcccc	gggctccacc	gcccccccag	cccacggtgt	cacctcgcc	1860
ccggacacca	ggccggcccc	gggctccacc	gcccccccag	cccacggtgt	cacctcgcc	1920
ccggacacca	ggccggcccc	gggctccacc	gcccccccag	cccacggtgt	cacctcgcc	1980
ccggacacca	ggccggcccc	gggctccacc	gcccccccag	cccacggtgt	cacctcgcc	2040
ccggacacca	ggccggcccc	gggctccacc	gcccccccag	cccacggtgt	cacctcgcc	2100
ccggacacca	ggccggcccc	gggctccacc	gcccccccag	cccacggtgt	cacctcgcc	2160
ccggacacca	ggccggcccc	gggctccacc	gcccccccag	cccacggtgt	cacctcgcc	2220

13150-70089US.ST25

ccggacacca ggccggcccc gggctccacc gcccccccag cccacggtgt cacctcgcc	2280
ccggacacca ggccggcccc gggctccacc gcccccccag cccacggtgt cacctcgcc	2340
ccggacacca ggccggcccc gggctccacc gcccccccag cccacggtgt cacctcgcc	2400
ccggacacca ggccggcccc gggctccacc gcccccccag cccacggtgt cacctcgcc	2460
ccggacacca ggccggcccc gggctccacc gcccccccag cccacggtgt cacctcgcc	2520
ccggacacca ggccggcccc gggctccacc gcccccccag cccacggtgt cacctcgcc	2580
ccggacacca ggccggcccc gggctccacc gcccccccag cccacggtgt cacctcgcc	2640
ccggacacca ggccggcccc gggctccacc gcccccccag cccacggtgt cacctcgcc	2700
ccggacacca ggccggcccc gggctccacc gcccccccag cccatggtgt cacctcgcc	2760
ccggacaaca ggccgcctt gggctccacc gccccctccag tccacaatgt cacctcgcc	2820
tcaaggctctg catcaggctc agttctact ctggtgaca acggcacctc tgccaggct	2880
accacaaccc cagccagcaa gagactcca ttctcaattc ccagccacca ctctgatact	2940
cctaccaccc ttgccagcca tagcaccaag actgatgcca gtagcacta ccatagctcg	3000
gtaccccttc tcaccccttc caatcacagc acttctcccc agttgtctac tgggtctct	3060
ttcttttcc tgtctttca cattcaaacc ctccagttt attcctctt ggaagatccc	3120
agcaccgact actaccaaga gctcagaga gacatttctg aaatgtttt gcagattat	3180
aaacaagggg gtttctggg cctctccaat attaagtta ggccaggatc tgtggtgta	3240
caattgactc tggccttccg agaaggtaacc atcaatgtcc acgacgtgga gacacagttc	3300
aatcagtata aaacggaagc agcctctcga tataacctga cgatctcaga cgtcagcgtg	3360
agtgatgtgc catttcctt ctctgcccag tctgggctg gggtgccagg ctggggcatc	3420
gcgcgtctgg tgctggctg tgttctggtt gcgcgtggca ttgtctatct cattgcctt	3480
gctgtctgtc agtgccgccc aaagaactac gggcagctgg acatttcc agcccggtat	3540
acctaccatc ctatgagcga gtacccacc taccacaccc atggcgcta tgtccccct	3600
agcagtaccg atcgttagccc ctatgagaag gtttctgcag gtaacggtgg cagcagccctc	3660
tcttacacaa acccagcagt ggcagccgt tctgccaact tgttagggcac gtcgcccgt	3720
agctgagtgg ccagccagt ccattccact ccactcaggt tcttcaggcc agagccctg	3780
caccctgttt gggctggta gctgggagtt caggtggct gctcacagcc tccttcagag	3840
gccccaccaa tttctcgac acttctcagt gtgtggaaagc tcatgtggc ccctgaggct	3900
catgcctggg aagtgttgta ggggctccca ggaggactgg cccagagagc cctgagatag	3960
cggggatcct gaactggact gaataaaaacg tggtctccca ctg	4003

13150-70089US.ST25

<211> 28
<212> DNA
<213> Artificial Sequence

<220>

<223> PCR Primer

<400> 49
gggaattcat gacaccgggc acccagtc 28

<210> 50
<211> 27
<212> DNA
<213> Artificial Sequence

<220>

<223> PCR Primer

<400> 50
ggtctcgaga acaactgtaa gcactgt 27

<210> 51
<211> 28
<212> DNA
<213> Artificial Sequence

<220>

<223> PCR Primer

<400> 51
ggtcggccgt aacaactgt a agcactgt 28

<210> 52
<211> 28
<212> DNA
<213> Artificial Sequence

<220>

<223> PCR Primer

<400> 52
gcacggccgc taccacaacc ccagccag 28

<210> 53
<211> 28
<212> DNA
<213> Artificial Sequence

<220>

<223> PCR Primer

<400> 53
gcacggccgg ttttctggc ctctccaa 28

13150-70089US.ST25

<210> 54
<211> 29
<212> DNA
<213> Artificial Sequence

<220>

<223> PCR Primer

<400> 54
gcacggccgg taccatcaat gtccacgac 29

<210> 55
<211> 28
<212> DNA
<213> Artificial Sequence

<220>

<223> PCR Primer

<400> 55
gggggatcct acaagttggc agaagcgg 28

<210> 56
<211> 39
<212> DNA
<213> Artificial Sequence

<220>

<223> PCR Primer

<400> 56
tgctcctcac agtgcttaca ggttctggtc atgcaagct 39

<210> 57
<211> 32
<212> DNA
<213> Artificial Sequence

<220>

<223> PCR Primer

<400> 57
gagcttgcac gaccagaacc tgtaacaact gt 32

<210> 58
<211> 23
<212> PRT
<213> Homo sapiens

<400> 58

Met Thr Pro Gly Thr Gln Ser Pro Phe Phe Leu Leu Leu Leu Thr
1 5 10 15

Val Leu Thr Val Val Thr Ala

<210> 59
<211> 24
<212> PRT
<213> Homo sapiens

<400> 59

Met Thr Pro Gly Thr Gln Ser Pro Phe Phe Leu Leu Leu Leu Thr
1 5 10 15
Val Leu Thr Val Val Thr Ala Gly
20

<210> 60
<211> 50
<212> PRT
<213> Artificial Sequence

<220>

<223> Synthetic Peptide

<400> 60

Thr Ile Asn Val His Asp Val Glu Thr Gln Phe Asn Gln Tyr Lys Thr
1 5 10 15
Glu Ala Ala Ser Pro Tyr Asn Leu Thr Ile Ser Asp Val Ser Val Ser
20 25 30
Asp Val Pro Phe Pro Phe Ser Ala Gln Ser Gly Ala His His His His
35 40 45
His His
50

<210> 61
<211> 63
<212> PRT
<213> Artificial Sequence

<220>

<223> Synthetic Peptide

<400> 61

Ser Val Val Val Gln Leu Thr Leu Ala Phe Arg Glu Gly Thr Ile Asn
1 5 10 15
Val His Asp Val Glu Thr Gln Phe Asn Gln Tyr Lys Thr Glu Ala Ala
20 25 30
Ser Pro Tyr Asn Leu Thr Ile Ser Asp Val Ser Val Ser Asp Val Pro
35 40 45
Phe Pro Phe Ser Ala Gln Ser Gly Ala His His His His His His
50 55 60

13150-70089US.ST25

<210> 62
<211> 19
<212> PRT
<213> Artificial Sequence

<220>

<223> Synthetic Peptide

<400> 62

His His His His His Ser Val Val Val Gln Leu Thr Leu Ala Phe
1 5 10 15
Arg Glu Gly

<210> 63
<211> 44
<212> PRT
<213> Homo sapiens

<400> 63

Thr Ile Asn Val His Asp Val Glu Thr Gln Phe Asn Gln Tyr Lys Thr
1 5 10 15
Glu Ala Ala Ser Arg Tyr Asn Leu Thr Ile Ser Asp Val Ser Val Ser
20 25 30
Asp Val Pro Phe Pro Phe Ser Ala Gln Ser Gly Ala
35 40

<210> 64
<211> 44
<212> PRT
<213> Artificial Sequence

<220>

<223> Synthetic Peptide

<400> 64

Thr Ile Asn Val His Asp Val Glu Thr Gln Phe Asn Gln Tyr Lys Thr
1 5 10 15
Glu Ala Ala Ser Pro Tyr Asn Leu Thr Ile Ser Asp Val Ser Val Ser
20 25 30
Asp Val Pro Phe Pro Phe Ser Ala Gln Ser Gly Ala
35 40

<210> 65
<211> 13
<212> PRT
<213> Homo sapiens

13150-70089US.ST25

<400> 65

Ser Val Val Val Gln Leu Thr Leu Ala Phe Arg Glu Gly
1 5 10

<210> 66

<211> 57

<212> PRT

<213> Homo sapiens

<400> 66

Ser Val Val Val Gln Leu Thr Leu Ala Phe Arg Glu Gly Thr Ile Asn
1 5 10 15

Val His Asp Val Glu Thr Gln Phe Asn Gln Tyr Lys Thr Glu Ala Ala
20 25 30

Ser Pro Tyr Asn Leu Thr Ile Ser Asp Val Ser Val Ser Asp Val Pro
35 40 45

Phe Pro Phe Ser Ala Gln Ser Gly Ala
50 55

3

- 1 -

821112.1